

REMARKS

The last Office Action has been carefully considered.

It is noted that claims 8 and 9 have been rejected under 35 U.S.C. 102(b) over the patent to House.

Claim 10 is rejected under 35 U.S.C. 103(a) over the patent to House over the patent to Gill.

Claims 11-14 are rejected under 35 U.S.C. 103(a) over the patent to Gill and Erickson.

After carefully considering the Examiner's grounds for the rejection over the art, applicant retained the claims as they were. It is respectfully submitted that the present invention as defined in the claims clearly and patentably distinguishes the present invention from the prior art.

In the Office Action the Examiner indicated that in his opinion the turbine disclosed in the patent to House has a rotor 10 with channels 14 and a casing 24, containing rotor having channels 30.

It is respectfully submitted that the rotor 10 is a pump and not a turbine, which supplies liquid heated working medium into a casing 24, which forms a jet turbine on two-phase working medium, whose acceleration is executed through nozzles 30. Driving of the rotor 10 into rotation is performed by a belt transmission or belting 68 and 76, from an output shaft 58, so that the rotary speed of the rotor 10 is directed in the same direction of the casing 24, since otherwise the rotor 4 would not operate as a pump. The working liquid in a rotor 10 during the process of its acceleration brakes the rotor 10 and therefore it is necessary to provide its forced rotation from the output shaft 58.

The difference of the invention disclosed in the patent to House resides in that in while in the applicant's invention the working medium is supplied into the channels of the rotor of the turbine, or in other words a mechanical energy generated, in the patent to House the energy is consumed in order to drive the rotor 10 of the pump into rotation.

In accordance with the present invention the working medium flows out from the channels of the rotor perpendicular to the radius of the rotor and tangentially to the inner surface of the drum so as to provide the rotation of the rotor, while in the patent to House the working medium flows out from the channels of the rotor 10 into an annular zone 22 not perpendicular, but instead at an angle which leads to losses and also brakes the rotor 10 against its forced rotation by means of the belting from the output shaft 58.

Also, in the patent to House the working medium flows out from the channels 30 of the casing 24 not perpendicular to the radius of the casing 24 due to the long channels and two-phase flow, while in the applicant's invention it is necessary to provide the flow out of the working medium perpendicular to the radius of the casing (normal to the radius of the casing), which provides a maximum moment of rotation when compared to the patent to House to increase a mechanical energy obtained in the turbine. In the present invention a sum of the attained mechanical energy from the rotor of the turbine and the casing is provided, which uses the kinetic energy of the flow of the spent working medium that flows out from the channels of the rotating rotor. This generates equal torques which however are directed in opposite directions, on the shafts of the rotor and the casing, so as to increase the total power of the turbine twice when compared with a single rotatable rotor.

It is therefore believed to be clear that the new features as defined in claim 8 are not disclosed in the patent to House.

As for claim 9, the patent to House actually discloses that the speed of the outer diameter of the rotor 10 and the speed of the inner surface of the casing 24 are equal. However, it can not be used in the applicant's invention since in the patent to House the rotation of the rotor 10 and the casing 24 takes place in the same direction, which is caused by the use of the rotor 10 as a pump, while in the applicant's invention the rotation of the rotor and the casing

are performed with equal speeds but in different directions, or in other words opposite to one another, which is caused by the use of casing of a turbine, with an increased total power approximately twice.

Claims 8 and 9 were rejected over these references under 35 U.S.C. 102 as being anticipated. As explained herein above, the present invention as defined in these claims is not disclosed in the patent to House. In connection with this, it is believed to be advisable to cite in re Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984) in which it was stated:

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim."

Definitely, this reference does not disclose each and every element of the present invention as defined in claims 8 and 9, and therefore it is respectfully submitted that the anticipation rejection should be considered as not tenable and should be withdrawn.

In connection with the Examiner's rejection of claim 10, it is respectfully submitted that the patent to House discloses a casing 24 which is connected coaxially with a shaft 58 arranged with the possibility of rotation, and a surrounding rotor 10 and not the Segner wheel as in the applicant's invention, a

case 64 with openings for placement of a pipe 50 and shafts 54 and 58 and the casing 24 of the rotor 10, and not a Segner wheel as in the applicant's invention. The casing 24 is formed as a cylindrical drum, a cylindrical projection of the casing 24 adjoins the rotor 10 through an annular space 24, and not with a gap with a small distance to the bent ends of the pipes of the segment wheel as in the applicant's invention. Passage ways 26 are provided on the cylindrical projection of the casing 24 and have liquid nozzles 28 and 30.

The rotor 10 is driven in rotation from the output shaft 28 by means of belting 68 and 76 with a low coefficient and is configured as a pipe for supply of liquid into the channels of the casing 24. In other words the rotor 10 uses energy for providing its rotation, and not generates energy as in the applicant's invention. The patent to Jill has a Segner wheel formed as a pipe with a closed end, connected coaxially with a shaft 2 arranged with the possibility of rotation, with reaction nozzles 4 arranged at opposite sides on the pipe and having bent ends 9.

In the applicant's invention the Segner wheel is connected with the shaft mounted with the possibility of rotation and is configured for obtaining mechanical energy, while in contrast in the patent to House the rotor 10 is a pump and is a user of energy, which does not increase the mechanical energy obtained in the turbine.

In the applicant's invention the cylindrical projection of the drum adjoins the bent ends of the pipes of the Segner wheel with a gapm, while in the patent to House the cylindrical projection of the casing 24 adjoins the rotor bent through an annular space 22 which has a significant size along the radius, as opposed to a gap or a small distance. The spent working medium which flows out from the Segner wheel tangentially to the surface of the drum interacts with the cylindrical projection of the drum, located very close at a distance of a small gap from the bent ends of the pipes of the Segner wheel without additional hydraulic losses. In contrast in the patent to House this distance is great, which leads to significant hydraulic losses due to entry of the jets from the passages 14 on the surface of the cylindrical projection of the casing 24 not tangentially but instead at an angle.

In addition, in the applicant's invention on the cylindrical projection of the drum, radially one pair of the pipes is fixed at opposite sides and they have open ends bent in different direction from their axis, opposite to the sides of the pipes of the Segner wheel, wherein the axis of the bent open ends of the pipes of the drum are perpendicular to a plane extending through the axes of the pipes of the drum and the axis of the pipe, which is not disclosed in the patent to House.

While the Segner wheel is known, what is not known and what is new in the applicant's invention is the use of the Segner wheel together with a rotatable casing for increasing a mechanical energy of the turbine.

It is believed that the new features of the present invention which are now defined in claim 10 are not disclosed in the patent to House and Gill. As for the obviousness rejection applied by the Examiner, it is respectfully submitted that none of the references teaches the new features of the present invention. Therefore, in order to arrive at the applicant's invention from the references, the references have to be fundamentally modified, in particular by including into them a new feature of the present invention which are now defined in claim 10. However, it is known that in order to arrive at a claimed invention, by modifying the references the cited art must itself contain a suggestion for such a modification.

This principle has been consistently upheld by the U.S. Court of Customs and Patent Appeals which, for example, held in its decision in Randol and Redford (165 USPQ 586) that

Prior patents are references only for what they clearly disclose or suggest, it is not a proper use of a patent as a reference to modify its structure to one which prior art references do not suggest.

In view of the above, it is respectfully requested to withdraw the rejection of claim 10 over the combination of the patents to House and Gill based on obviousness.

As for claims 11-14, which are rejected over the patent to House, Gill and Erickson, it should be mentioned that the patent to Erickson discloses a tubular body having a streamline airfoil shape. However, this tubular body is completely different, it is not fixed immovably and it is not rotated as explained in column 3, lines 1-2, while in the applicant's invention the pipes of the Segner wheel and the pipes of the drum are rotatable during operation of the turbine. Moreover, in the patent to Erickson, the pipe has a lens shape, while in the applicant's invention the pipes have a ring shape, or in other words have a different configuration. Also, the patent to Erickson does not disclose a range of profile, while in the applicant's invention it is clearly stated that $L/b \geq 5$.

It is therefore believed that the combination of the patents to House, Gill and Erickson also would not lead to the present invention as defined in claims 11 and 14.

Reconsideration and allowance of the present application is most respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place this case in condition for final allowance, then it is respectfully requested that such amendments or corrections be carried out by Examiner's Amendment, and the case be passed to issue. Alternatively, should

the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, he is invited to telephone the undersigned (at 631-243-3818).

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Ilya Zborovsky', written in a cursive style.